



**PRESCRIBER'S ORDERS FOR:  
PICU Severe Burns (over 25% TBSA)**

DATE \_\_\_\_/\_\_\_\_/\_\_\_\_ TIME \_\_\_\_\_  
DD MM YYYY

BSA \_\_\_\_\_ M2

WEIGHT: \_\_\_\_\_ KG HEIGHT: \_\_\_\_\_ CM

ALLERGY CAUTION sheet reviewed

**Code Status**

Code status: \_\_\_\_\_

**Status/Admit/Transfer/Discharge**

▶ **Attending Physicians**

Intensivist \_\_\_\_\_

Plastic Surgeon \_\_\_\_\_

▶ **Plastic Surgeon on call notified at time: \_\_\_\_ : \_\_\_\_ (h)**

▶ **Injury Information**

% Total Body Surface Area (TBSA) burn \_\_\_\_\_

Type of burn \_\_\_\_\_ (See burn diagram for additional details)

Other injuries (list) \_\_\_\_\_

Injury time: \_\_\_\_ : \_\_\_\_ (h)

**Patient Care**

- Insert nasogastric tube for continuous feeding within first 24 hours after injury
- Target urine output 0.5 to 1 mL/kg/hr
- Measure and record bladder pressure Q6H - notify physician if rising or greater than 12 millimetres mercury (consider if increasing ventilatory pressures, decreasing urine output or increasing abdominal distension)
- Burn Dressing as per Plastic Surgery
- Elevate burned areas if possible

**Vital Signs**

- Vital signs Q1H and PRN
- Target heart rate less than 170 (see Age Related Vital Signs on reverse for range)
- Target mean arterial pressure greater than 55 mmHg (see recommendations for hypotension on reverse prior to treatment)
- Target patient temperature 37.5 to 38.5 Celsius. Adjust room temperature between 24 to 28 Celsius, and actively warm patient if ambient heat is insufficient to maintain target temperatures.

**Medications**

- ▶ **Account for ascorbic acid infusion rate as part of the total resuscitation fluid rate calculated.**
- ascorbic acid (ROUTINE) 66 mg/kg/h IV (diluted in Lactated Ringer's) for 24 hours post injury then discontinue
- hydroxocobalamin \_\_\_\_\_ mg (70 mg/kg/dose) IV once for patients with documented or suspected inhalation injury (Maximum 5 grams)
- ondansetron 0.15 mg/kg/dose IV Q8H PRN (Maximum 8 mg/dose)
- ▶ **Please refer to the guidelines for Pain Management for Non-Intubated Children with Severe Burns and Pain Management for Intubated Children with Severe Burns**
- acetaminophen \_\_\_\_\_ mg (15 mg/kg/dose) PO/PR/NG/NJ Q4H PRN for comfort and maintain MAPS 0 (Maximum oral dose 75 mg/kg/24 h; Maximum oral dose for less than 3 months 60 mg/kg/24h; Maximum rectal dose 80 mg/kg/24h; Maximum 4000 mg/24 h from all sources)
- morphine bolus \_\_\_\_\_ mg (0.05 mg/kg/dose) IV Q15MIN PRN pain to maintain MAPS 0
- ketamine \_\_\_\_\_ mg (0.5 to 1 mg/kg/dose) IV Q10MIN PRN to maintain MAPS 0
- midazolam bolus \_\_\_\_\_ mg (0.05 mg/kg/dose) IV Q15MIN PRN to maintain SBS -1 to 0

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ALLERGY CAUTION sheet reviewed

**IV Infusions**

- Maintenance fluid rate \_\_\_\_\_ mL/h (75% maintenance)
- Dextrose 10% and 0.9% Sodium Chloride IV For weight less than 5 kg \_\_\_\_\_ mL/h (75% maintenance)
- Dextrose 5% and 0.9% Sodium Chloride IV For weight at or above 5 kg \_\_\_\_\_ mL/h (75% maintenance)
- Dextrose 5% in Water and Lactated Ringers IV \_\_\_\_\_ mL/h (75% maintenance)
- ▶ **Please refer to the guidelines for Pain Management for Non-Intubated Children with Severe Burns and Pain Management for Intubated Children with Severe Burns**
- morphine continuous infusion 0 to 40 mcg/kg/h IV continuous infusion, titrated to maintain MAPS 0
- dexmedetomidine continuous infusion 0 to 0.8 mcg/kg/h IV continuous infusion, titrated to maintain MAPS 0 and SBS -1 to 0
- midazolam continuous infusion 0 to 120 mcg/kg/h IV continuous infusion, titrated to maintain SBS -1 to 0
- ketamine continuous infusion 0 to 40 mcg/kg/min IV continuous infusion, titrated to maintain MAPS 0

**Central Venous Monitoring Lines**

- 0.9% Sodium Chloride IV with heparin 2 units/mL and infuse at 1 mL/h for weight less than 20 kg
- 0.9% Sodium Chloride IV with heparin 2 units/mL and infuse at 2 mL/h for weight greater than 20 kg

**Arterial Monitoring Lines**

- 0.9% Sodium Chloride IV with heparin 2 units/mL and infuse at 2 mL/h for weight greater than 20 kg
- 0.9% Sodium Chloride IV with heparin 2 units/mL and infuse at 1 mL/h for weight less than 20 kg

**Initial Resuscitation Fluid Calculations (Time Zero is Time of Injury)**

- ▶ Prehospital resuscitation fluid volume \_\_\_\_\_ millilitres (mL)
- ▶ (patient weight) x (% TBSA) x (3 mL/Kg/%TBSA) = Total resuscitation fluid in first 24 hours after injury  
\_\_\_\_\_ kg x \_\_\_\_\_ % x 3 mL/kg/%TBSA = \_\_\_\_\_ mL resuscitation fluid in first 24 hours after injury
- ▶ 50% of total resuscitation volume given in first 8 hours after injury \_\_\_\_\_ mL in 24 hours / 2 = \_\_\_\_\_ mL in first 8 hours after injury
- ▶ Adjust for pre-calculation fluid administration \_\_\_\_\_ mL in first 8 hours - \_\_\_\_\_ mL resuscitation fluid already administered = \_\_\_\_\_ mL remaining for first 8 hours after injury
- ▶ Volume remaining / time remaining in first 8 hours = Initial BCCH resuscitation fluid rate: \_\_\_\_\_ mL / (8 - \_\_\_\_\_ hours since burn) = \_\_\_\_\_ mL/hr continuous intravenous infusion of Lactated Ringer's
- ▶ Adjust rate per Pediatric Burn Resuscitation Protocol guidelines

**Nutrition**

- Tube feeding
- Enteral feeds with formula \_\_\_\_\_ (\_\_\_\_\_ Kcal/mL) at 5 mL/h via nasogastric tube or nasojejunal tube (as soon as possible after admission)
  - Goal rate for enteral feeds \_\_\_\_\_ mL/h as tolerated

**Respiratory**

- Titrate oxygen to maintain oxygen saturations greater than 92%

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**Laboratory**

- Blood gas, arterial as needed
- Blood gas, arterial
  - PRN
  - Q8H for the first 24 hours
  - Q12H for the second 24 hours
  - Q24H at 0600h
- Complete blood cell count with automated white blood cell differential
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h
- Sodium level, serum
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h
- Potassium level, serum
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h
- Chloride, serum
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h
- Urea
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h
- Creatinine (Cr), serum
  - Q8H for the first 24 hours
  - Q12H for the next 24 hours
  - Q24H at 0600h

**Blood Products**

- ▶ Blood product transfusions only after consultation with plastic surgery and intensive care attending physicians

**Medical Imaging**

- Radiograph, chest on admission

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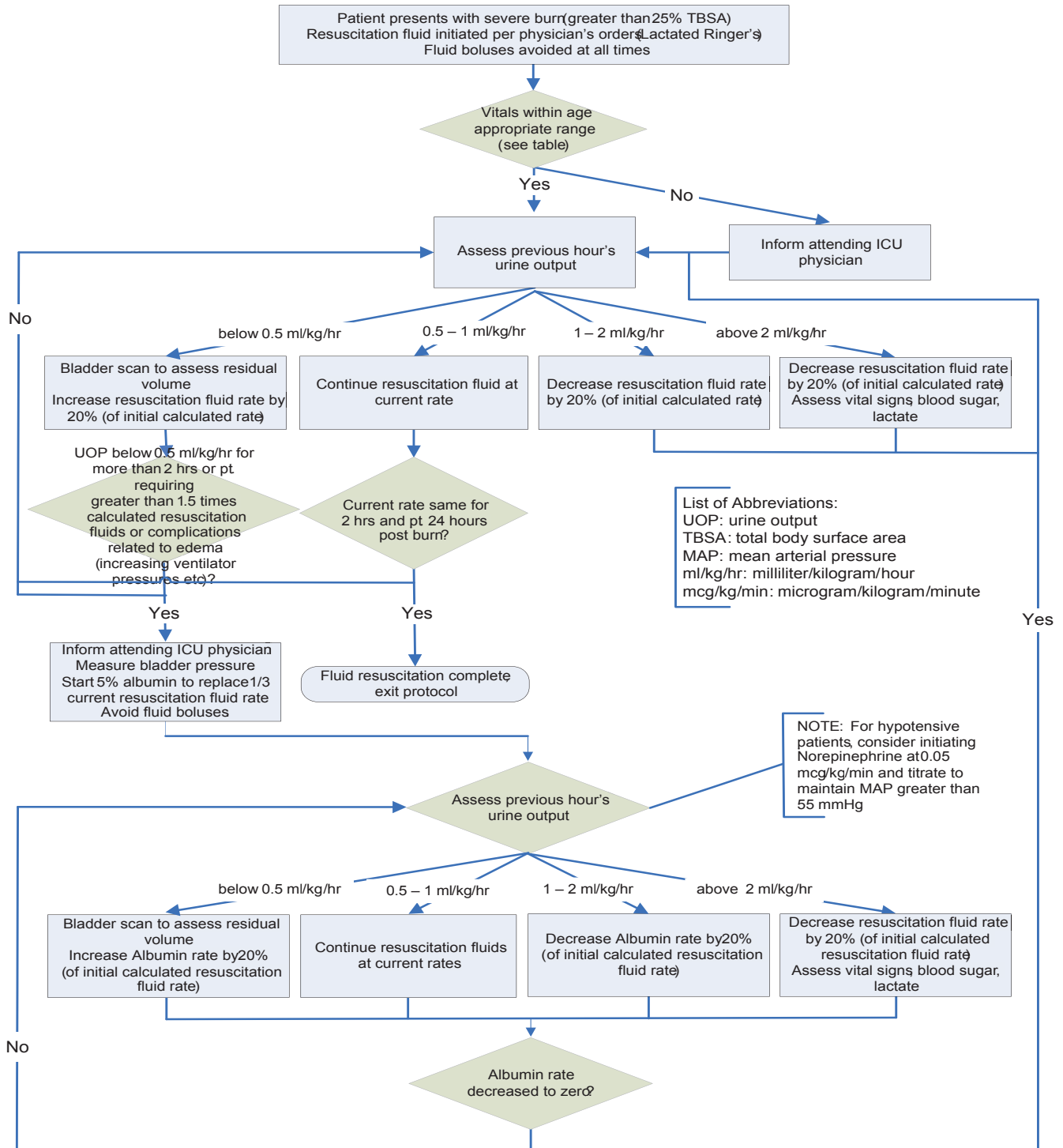
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## BURN RESUSCITATION PROTOCOL – INITIAL 48 HOURS





# BURN DIAGRAM



- Scald
- Flame
- Contact
- Chemical
- Electrical
- Inhalation injury
- Associated injuries \_\_\_\_\_

<b>Key</b>	
Ant = anterior	Post. = posterior
° = degrees	R = right
kg = kilograms	R.L. = right lower
L = left	R.U. = right upper
L.L. = left lower	TBSA = total body surface area
L.U. = left upper	y = years
ml = millilitres	

Assessment by \_\_\_\_\_  
 Dr \_\_\_\_\_



**Pediatric Intensive Care Unit  
Pediatric Major Burn  
Resuscitation Nursing Flow Sheet**

Date: \_\_\_\_\_

Burn Information and Estimated Fluid Resuscitation Volume					
Pre burn weight (kg)	% TBSA Burn	Pre arrival fluid volume	24 hour Parkland calculation	Estimated volume in first 48 hours	Initial BCCH resuscitation rate

Local Time	Hours since Burn	Infusion Rate	Total Crystalloid (mL)	Total Colloid (mL)	Enteral Feeds (mL)	TOTAL Fluids in	TOTAL Output (mL)	NG Losses (mL)	Blood Loss	TOTAL Fluid Out	MAP
	1 <sup>st</sup> hr										
	2 <sup>nd</sup> hr										
	3 <sup>rd</sup> hr										
	4 <sup>th</sup> hr										
	5 <sup>th</sup> hr										
	6 <sup>th</sup> hr										
	7 <sup>th</sup> hr										
	8 <sup>th</sup> hr										
<b>Initial 8 hours total:</b>											
	9 <sup>th</sup> hr										
	10 <sup>th</sup> hr										
	11 <sup>th</sup> hr										
	12 <sup>th</sup> hr										
	13 <sup>th</sup> hr										
	14 <sup>th</sup> hr										
	15 <sup>th</sup> hr										
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	19 <sup>th</sup> hr										
	20 <sup>th</sup> hr										
	21 <sup>st</sup> hr										
	22 <sup>nd</sup> hr										
	23 <sup>rd</sup> hr										
	24 <sup>th</sup> hr										
<b>Subsequent 16 hours total:</b>											
<b>First 24 hours total:</b>											

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**Key**

hr = hour

kg = kilogram

MAP = mean arterial pressure

mL = milliliter

TBSA = total body surface area

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## Age Appropriate Vital Sign Ranges\*

Suggested Range of Normal Values					
Age Group	0 days– 3 months	3-12 months	1-4 years	4 yrs – 12 yrs	Over 12 years
<b>HR</b>	110-170	100-150	90-120	70-110	60-100
<b>RR</b>	30-60	25-50	15-40	15-30	12-16
<b>Systolic</b>	60-80	70-100	80-110	80-120	90-130
<b>MAP (lower limit)</b>	45	50	55	60	65

\*Modified from Nelson's Textbook of Pediatrics, 17<sup>th</sup> edition.

## Recommendations for Hypotension

Hypotension **MUST NOT** be defined or acted upon by MAP values alone. It must be correlated with decreased urine output and an overall patient assessment. MAP values below those outlined in the table above are acceptable as long as urine output exceeds 0.5 mL/kg/hr, ScvO<sub>2</sub> greater than 60% and lactate less than 3mmol/L.

Fluid boluses should **ONLY** be administered for the reversal of acute profound hypotension.

If Mean Arterial Pressure (MAP) is consistently less than the lower limit for age and there is evidence of poor end-organ perfusion (urine output less than 0.5 mL/kg/hr, lactate greater than 3mmol/L, ScvO<sub>2</sub> less than 70%) the following stepwise guide is recommended:

1. Assess Volume Status: If MAP is less than the lower limits outlined above, CVP is less than 5 and urine output is below 0.5 mL/kg/hr, refer to the Burn Resuscitation Algorithm to determine the appropriate increase in resuscitation fluid rate (generally 20%). Continue fluid administration as guided by the Burn Resuscitation Algorithm.
2. If MAP is persistently less than the lower limit for age and resuscitation fluid rate is greater than 2 times the initial calculated rate, consider initiation of Norepinephrine at 0.01-0.05 mcg/kg/min to maintain MAP above the lower limit for age (severe burn patients may require Norepinephrine for vasodilatory shock secondary to a massive systemic inflammatory response).
3. Reassess Patient: If persistently requiring Norepinephrine (0.01-0.05 mcg/kg/min) consider a lower MAP goal as long as urine output exceeds 0.5 mL/kg/hr, ScvO<sub>2</sub> greater than 60% and lactate less than 3mmol/L.
4. Maintain ionized calcium greater than 1mmol/L.

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